

II. CLAIMS 1 AND 2 SATISFY ALL
FORMAL REQUIREMENTS

The Office Action objects to claims 1 and 2 noting minor informalities in the claims.

Claims 1 and 2 have been amended to correct the minor informalities noted by the Examiner.

III. THE CLAIMS SATISFY ALL 35 U.S.C. §112,
SECOND PARAGRAPH REQUIREMENTS

The Office Action rejects claims 1 and 2 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Office Action asserts that, in claims 1 and 2, the recitation "two ball bearings width of inner races of which is smaller than the width of outer races are inserted from one side" is vague, indefinite, and confusing language. Additionally, the Office Action asserts that, in claim 2, the recitation "and one inner races of the two ball bearings are pushed with a spring" is indefinite and confusing language. Claims 1 and 2 have been amended to render moot the rejection of these claims under 35 U.S.C. §112, second paragraph.

IV. THE CLAIMS DEFINE ALLOWABLE SUBJECT MATTER

The Office Action rejects claims 1 and 2 under 35 U.S.C. §103(a) as being unpatentable over Wrobel (U.S. Patent No. 5,274,289) in view of Itsu (U.S. Patent No. 5,128,571). This rejection is respectfully traversed.

The claimed invention provides a duplex bearing in which one pair of single row bearings is applied. Contrarily, Itsu deals with a double row bearing applied in a hard disk driving motor. Wrobel does not disclose an outer race of each bearing that is axially longer than an inner race.

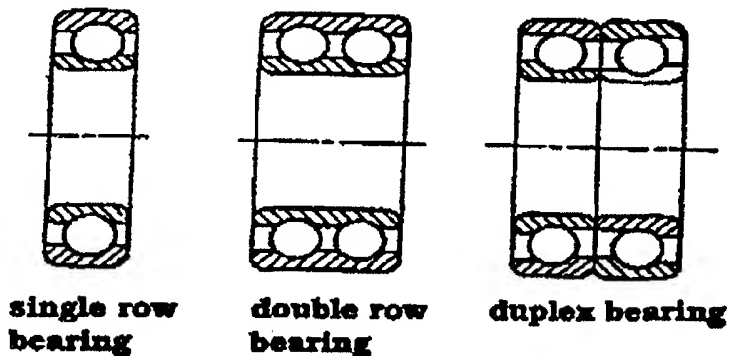
The claimed invention enhances coaxiality between the two single row bearings to become 0.01 or less in the duplex bearing. It is difficult to obtain such accuracy. However,

in the double row bearing considered in Itsu, the coaxiality cannot be considered because it only has a single outer race.

Based on the above, the claimed invention is not related to Itsu. The duplex bearing of the claimed invention provides increased cost effectiveness because it is less expensive to manufacture than the double row bearing. However, as described above, the coaxiality of the duplex bearing is the object needed to be overcome unlike the double row bearing of Itsu having the single outer race.

Accordingly, the claimed invention is for a blower having the duplex bearing oriented so that the single row of bearings have inner races axially shorter than the outer races and so the coaxiality of one pair of the single row bearings is set to be 0.01 or less.

References for Bearings



Therefore, for all the foregoing reasons, it is submitted that claims 1 and 2 are allowable.

V. CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 2 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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Attachments:
Appendix

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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APPENDIX

Changes to Specification:

Page 4, lines 1-11:

At the center portion of the motor base 7, as shown in Fig. 1, a cylindrical bearing box 7b, the tip of which is oriented inside and having a bottom portion 7a, is formed, and ~~into the bearing box 7b,~~ two ball bearings 8, 9 are inserted into the bearing box 7b from the right side of Fig. 1 and abutted to the bottom 7a to hold the outer races 8a and 9a (see Fig. 2). At an outer end of the outer race of the ball bearing 9, a spacer 10 for preventing removal is provided. As to details of the ball bearing, these are explained later. At the center of the motor base 7, a shaft 11 (rotary shaft) ~~passes is come through and~~ is rotatably supported with the inner races 8b and 9b of the ball bearings 8 and 9 ~~rotatably~~.

Page 4, lines 19-22:

At the portion where the bush 13 of the shaft 11 is coupled, the center portion of the plate-like yoke 15 is mounted by pressing and sticking ~~working,~~ and on the inner peripheral portion a ring-like magnet 16 is mounted on by adhering.

Page 4, line 33- page 5, line 7:

Thus structured blower 1, when the stator core 21 is magnetized by being supplied with power through the electronic parts 19, 20 as a controlling circuit to the stator winding 22, due to the mutual magnetic function with the magnet 16, the shaft 11 is rotated with the magnet 16 and the yoke 15. Since the impeller 17 is mounted on the periphery of the yoke 15, it rotates in a unitary manner and between the casing 2 and the cylindrical portion 4 ~~an oriented air is generated.~~

Page 5, lines 8-21:

Based on Fig. 2 ball bearings 8, 9 are explained. Although the ball bearings 8, 9 are formed in such a manner that balls 8c, 9c are interposed between outer races 8a, 9a and inner

races 8b, 9b through the retainers 8d, 9d, different from ordinary ball bearings, the width dimension L_2 of the inner races 8b, 9b is smaller than the width dimension L_1 of the outer races 8a, 9a. Due to the difference of the width dimension described above, between the inner race 8b of the ball bearing 8 and the inner race 9b of the ball bearing 9, clearance L_3 ($L_3 = L_1 - L_2$) can be obtained. With this clearance L_3 (e.g., 0.1~0.3 mm), while in a condition of contacting to the shaft 11, the two ball bearings 8, 9 can be displaced while accommodating their positions with respect to the direction of the shaft 11, so that therefore, the coaxiality of the ball bearings is increased.

Changes to Claims:

The following is a marked-up version of the amended claims:

1. (Amended) In a blower which comprises an impeller fixed on one end of a shaft supported rotatably by bearings ~~rotatably~~ and a ring-like magnet provided inside the impeller, wherein the shaft and the impeller ~~rotate~~are made to be rotated due to a magnetic interference function between the magnet and a winding provided at a position of a stator corresponding to the magnet, which is supplied with a current, the blower is characterized in that, in a resin-made bearing box, two ball bearings each having an inner race and an outer race, the inner race being narrower than the outer race, width of inner races of which is smaller than the width of outer races are inserted from one side of the blower.

2. (Amended) In a blower which comprises an impeller fixed on one end of a shaft supported rotatably by bearings ~~rotatably~~ and a ring-like magnet provided inside the impeller, wherein the shaft and the impeller ~~rotate~~are made to be rotated due to a magnetic interference function between the magnet and a winding provided at a position of a stator corresponding to the magnet, which is supplied with a current, the blower is characterized in that, in a resin-made bearing box, two ball bearings each having an inner race and an outer race, the inner race being narrower than the outer race, width of inner races of which is smaller

~~than the width of outer races~~ are inserted from one side of the blower, and one of the inner races of the two ball bearings ~~is~~are pushed with a spring toward the other ball bearing.